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NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION  
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MERRIFIELD, VA 22116

EXAMINER
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FUJITA, KATRINA R

ART UNIT	PAPER NUMBER
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2624

NOTIFICATION DATE	DELIVERY MODE
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01/25/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/711,032

Applicant(s)

ZHANG, ZHI-HAI

Examiner

Katrina Fujita

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The disclosure is objected to because of the following informalities:  
  
In paragraph 0025, line 14, "receivess" should be -- ~~receivess~~ receives --.  
  
Appropriate correction is required.

### ***Claim Objections***

3. The following is a quotation of 37 CFR 1.75(a):  
  
The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.
4. Claim 11, 15-18, 22 and 24 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

In line 1, claim 11 lacks antecedent basis for "the light-sensing component source". The following will be assumed for examination purposes -- the light-sensing component ~~source~~ --.

Claim 15 requires a "transparent plate" in line 1. It is unclear whether this is intended to be the same as or different from the "transparent plate" in claim 13, line 5 or the "transparent plate" in claim 14, line 2. The following will be assumed for examination purposes: -- the transparent plate for the print medium to be placed on --. The same applies to claims 16-18.

Claim 22 requires a "transparent plate" in line 1. It is unclear whether this is intended to be the same as or different from the "transparent plate" in claim 19, line 5 or the "transparent plate" in claim 20, line 2. The following will be assumed for examination purposes: -- the transparent plate --. (rather than "the adaptor") The same applies to claim 24.

5. The following is a quotation of 37 CFR 1.75(d)(1):

The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

6. Claims 16, 18, 22 and 24 are objected to under 37 CFR 1.75(d)(1), as failing to conform to the invention as set forth in the remainder of the specification.

Claim 16 requires a transparent plate of a thickness of six **millimeters**. The specification describes the plate as being six **centimeters** at paragraph 0037, line 6.

As the claim does not have antecedent basis in the specification for "millimeters", it is thus objected to. The same applies to claim 22.

Claim 18 requires a transparent plate having thicknesses of three and eight **millimeters**. The specification describes the plate as being three and eight **centimeters** at paragraph 0037, line 8. As the claim does not have antecedent basis in the specification for "millimeters", it is thus objected to. The same applies to claim 24.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tahara et al. (US 5,856,048).

Regarding **claim 1**, Tahara et al. discloses a method for capturing ("read the information-recorded medium" at col. 23, line 3) a pattern printed on a print medium, the pattern comprising a holographic image ("diffraction grating and a hologram is formed on a printed layer" at col. 22, line 53) and the method comprising following steps:

(a) providing an image-capturing device (figure 17) comprising a light source (figure 17, numeral 44) for emitting light onto the print medium (figure 17, numeral 50) and a light-sensing component (figure 17, numeral 54) for receiving light reflected (figure 17, numeral 49) from the print medium;

(b) adjusting a disposition of the print medium ("information-recorded medium is relatively moved" at col. 23, line 34), and equivalently locating the light-sensing component in a blind zone where the light-sensing component will not receive light reflected from the holographic image of the pattern ("reflected light 49 travels in the direction opposite to that of the incident light through the composite member 43, and is diffracted toward a given direction determined by the pitch and direction of the diffraction grating" at col. 23, line 25; as shown, the only reflected light this sensor receives is light that was reflected by the substrate and then diffracted. as such, the light reflected by the holographic image is not received by this sensor); and

(c) capturing the pattern with the light source and the light-sensing component ("diffracted light 51 is received by a light receptor element 54" at col. 23, line 29).

Tahara et al. does not explicitly disclose adjusting a disposition of the light source and the light-sensing component.

However, Tahara et al. does disclose that the arrangement of the light source and the light-sensing component could change depending on the characteristics of the diffraction grating ("light source 44, optical system 45, receptor element 54 and the mechanism (not shown) for moving the information-recorded medium 50 are relatively

arranged in such a way that it conforms to the angle and direction of diffraction of the diffracted light" at col. 23, line 47).

Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to adjust the light source and light-sensing component to accommodate for various read arrangement needs.

Regarding **claim 2**, Tahara et al. discloses a method wherein adjusting the disposition of the light source, the light-sensing component and the print medium is realized by relocating the light sensing component (as shown above in the 103 rejection of claim 1, the light-sensing component can be moved to accommodate for a specific diffraction).

Regarding **claim 3**, Tahara et al. discloses a method wherein adjusting the disposition of the light source, the light-sensing component and the print medium is realized by relocating the light source (as shown above in the 103 rejection of claim 1, the light source can be moved to accommodate for a specific diffraction need).

Regarding **claim 7**, Tahara et al. discloses a device for implementing the method of claim 1 (figure 17).

9. Claims 4, 5 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tahara et al. and Baba et al. (US 5,729,024).

Regarding **claim 4**, Tahara et al. discloses the elements of claim 1 as described in the 103 rejection above.

Tahara et al. does not disclose installing a transparent plate between the print medium and the image-capturing device.

Baba et al. teaches a method for capturing a pattern printed on a print medium ("original edge detecting system for detecting edges of an original paper sheet' at col. 1, line 8) wherein adjusting the disposition of the light source (figure 12, numeral 8), the light-sensing component (figure 12, numeral 20) and the print medium (figure 12, numeral 5) is realized by installing a transparent plate between the print medium and the image-capturing device (figure 12, numeral 3; the transparent plate inherently has transmission characteristics that affect how the light will be received by the print medium).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the transparent plate of Baba et al. in the device of Tahara et al. to achieve a particular diffraction arrangement need to read certain information-recorded mediums.

Regarding **claim 5**, Baba et al. discloses a method wherein the transparent plate comprises a first surface for the print medium to be placed on (the top of the plate as shown in figure 12) and a second surface disposed in parallel with the first surface (the bottom of the plate as shown in figure 12).

Regarding **claim 8**, Tahara et al. discloses the elements of claim 1 as described in the 103 rejection above.

Tahara et al. does not disclose providing the image-capturing device with a logic unit for adjusting a disposition of the light source and the light-sensing component.



Baba et al. discloses a method comprising providing the image-capturing device with a logic unit (portion of figure 12 that contains the "single computer software" at col. 15, line 12) for adjusting the disposition of the light source and the light-sensing component.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the logic unit of Baba et al. to control positioning of the components of Tahara et al. to adjust the light source and light-sensing component to accommodate for various read arrangement needs.

Regarding **claim 9**, Baba et al. discloses a method wherein the logic unit is a logic circuit (it is implied that the software is contained in a memory circuit).

Regarding **claim 10**, Baba et al. discloses a method wherein the logic unit is a program code stored in a memory device (it is implied that the software is contained in a memory circuit).

Regarding **claim 11**, the Tahara et al. and Baba et al. combination discloses a method wherein the light-sensing component is movable (as discussed above, the sensor is movable) and the logic unit is capable of controlling the light-sensing component to move to a predetermined position (as discussed above, the sensor can be put in a position that enables it to account for a particular diffraction).

Regarding **claim 12**, the Tahara et al. and Baba et al. combination discloses a method wherein the light source is movable (as discussed above, the light source is movable) and the logic unit is capable of controlling the light source to move to a

predetermined position (as discussed above, the light source can be put in a position that enables it to account for a particular diffraction).

10. Claim 6, 13-15, 17, 19-21 and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tahara et al. and Baba et al. as applied to claim 4 above, and further in view of common knowledge in the art as evidenced by Yoshimura (US 4,796,963).

Regarding **claim 6**, the Tahara et al. and Baba et al. combination discloses the elements of claim 4 as described in the 103 rejection above.

The Tahara et al. and Baba et al. combination does not disclose that the transparent plate comprises a second surface oblique to the first surface.

However, it is common knowledge in the art that a transparent plate placed at an angle to a light source will have different transmission and reflection characteristics ("When the transparent plate 50 is inclined by a predetermined angle  $\theta$  with respect to the axial direction of the rotary polygon mirror 52, most of the incident laser beam emitted by the laser diode unit 42 is refracted at a border between the air and the front surface of the transparent plate 50 and enters therein" Yoshimura at col. 7, line 1).

Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize a transparent plate with an angled surface in the device of the Tahara et al. and Baba et al. combination to achieve a particular diffraction arrangement need to read certain information-recorded mediums.

Regarding **claim 13**, Tahara et al. discloses an image-capturing device for capturing a pattern printed on a print medium ("read the information-recorded medium" at col. 23, line 3), the pattern comprising a holographic image ("diffraction grating and a hologram is formed on a printed layer" at col. 22, line 53) and the image-capturing device comprising:

a light source (figure 17, numeral 44) for emitting light onto the print medium (figure 17, numeral 50);

a light-sensing component (figure 17, numeral 54) for receiving light reflected (figure 17, numeral 49) from the print medium; and

changing a disposition of the print medium, the light source and the light-sensing component ("light source 44, optical system 45, receptor element 54 and the mechanism (not shown) for moving the information-recorded medium 50 are relatively arranged in such a way that it conforms to the angle and direction of diffraction of the diffracted light" at col. 23, line 47), and for equivalently locating the light-sensing component in a blind zone where the light-sensing component will not receive light reflected from the holographic image of the pattern ("reflected light 49 travels in the direction opposite to that of the incident light through the composite member 43, and is diffracted toward a given direction determined by the pitch and direction of the diffraction grating" at col. 23, line 25; as shown, the only reflected light this sensor receives is light that was reflected by the substrate and then diffracted. as such, the light reflected by the holographic image is not received by this sensor).

Tahara et al. does not disclose a transparent plate for the print medium to be placed on.

Baba et al. teaches a image-capturing device for capturing a pattern printed on a print medium ("original edge detecting system for detecting edges of an original paper sheet' at col. 1, line 8) comprising a transparent plate for the print medium to be placed on (figure 12, numeral 3; the transparent plate inherently has transmission characteristics that affect how the light will be received by the print medium).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the transparent plate of Baba et al. in the device of Tahara et al. to achieve a particular diffraction arrangement need to read certain information-recorded mediums.

The Tahara et al. and Baba et al. combination does not disclose an adaptor installed between the transparent plate and the print medium.

However, it is common knowledge in the art that an adaptor, in the form of a transparent plate, placed at an angle to a light source will have different transmission and reflection characteristics ("When the transparent plate 50 is inclined by a predetermined angle  $\theta$  with respect to the axial direction of the rotary polygon mirror 52, most of the incident laser beam emitted by the laser diode unit 42 is refracted at a border between the air and the front surface of the transparent plate 50 and enters therein" Yoshimura at col. 7, line 1).

Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize a transparent plate with an angled surface in the device of the Tahara et al. and Baba et al. combination to achieve a particular diffraction arrangement need to read certain information-recorded mediums.

Regarding **claim 14**, the Tahara et al. and Baba et al. combination discloses a method wherein the adaptor is a transparent plate (see the rejection of claim 13).

Regarding **claim 15**, Baba et al. discloses a method wherein the transparent plate for the print medium to be placed on comprises a first surface for the print medium to be placed on (the top of the plate as shown in figure 12) and a second surface disposed in parallel with the first surface (the bottom of the plate as shown in figure 12).

Regarding **claim 17**, the Tahara et al. and Baba et al. combination discloses a method wherein the transparent plate for the print medium to be placed on comprises a first surface for the print medium to be placed on and a second surface oblique to the first surface (see the 103 rejection of claim 6).

Regarding **claim 19**, Tahara et al. discloses an image-capturing device for capturing a pattern printed on a print medium ("read the information-recorded medium" at col. 23, line 3), the pattern comprising a holographic image ("diffraction grating and a hologram is formed on a printed layer" at col. 22, line 53) and the image-capturing device comprising:

- a light source (figure 17, numeral 44);

- a light-sensing component (figure 17, numeral 54); and

changing a disposition of the print medium, the light source and the light-sensing component ("light source 44, optical system 45, receptor element 54 and the mechanism (not shown) for moving the information-recorded medium 50 are relatively arranged in such a way that it conforms to the angle and direction of diffraction of the diffracted light" at col. 23, line 47), and for equivalently locating the light-sensing component in a blind zone where the light-sensing component will not receive light reflected from the holographic image of the pattern ("reflected light 49 travels in the direction opposite to that of the incident light through the composite member 43, and is diffracted toward a given direction determined by the pitch and direction of the diffraction grating" at col. 23, line 25; as shown, the only reflected light this sensor receives is light that was reflected by the substrate and then diffracted. as such, the light reflected by the holographic image is not received by this sensor).

Tahara et al. does not disclose a transparent plate.

Baba et al. teaches a image-capturing device for capturing a pattern printed on a print medium ("original edge detecting system for detecting edges of an original paper sheet" at col. 1, line 8) comprising a transparent plate (figure 12, numeral 3; the transparent plate inherently has transmission characteristics that affect how the light will be received by the print medium) comprising a first surface to the print medium to be placed on (the top of the plate as shown in figure 12) a second surface installed on a first side of the first surface according to a predetermined rule for contacting with the transparent plate (bottom of the plate as shown in figure 12).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the transparent plate of Baba et al. in the device of Tahara et al. to achieve a particular diffraction arrangement need to read certain information-recorded mediums.

The Tahara et al. and Baba et al. combination does not disclose an adaptor for an image-capturing device comprising a first surface for the print medium to be placed on and a second surface installed on a first side of the first surface according to a predetermined rule for contacting with the transparent plate.

However, it is common knowledge in the art that an adaptor, in the form of a transparent plate, placed at an angle to a light source will have different transmission and reflection characteristics ("When the transparent plate 50 is inclined by a predetermined angle  $\theta$  with respect to the axial direction of the rotary polygon mirror 52, most of the incident laser beam emitted by the laser diode unit 42 is refracted at a border between the air and the front surface of the transparent plate 50 and enters therein" Yoshimura at col. 7, line 1).

Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize a transparent plate with an angled surface in the device of the Tahara et al. and Baba et al. combination to achieve a particular diffraction arrangement need to read certain information-recorded mediums.

Regarding **claim 20**, the Tahara et al. and Baba et al. combination discloses a method wherein the adaptor is a transparent plate (see the rejection of claim 19).

Regarding **claim 21**, Baba et al. discloses a method wherein first surface (the top of the plate as shown in figure 12) is parallel with the second surface (the bottom of the plate as shown in figure 12).

Regarding **claim 23**, the Tahara et al. and Baba et al. combination discloses a method wherein the transparent plate for the print medium to be placed on comprises a first surface for the print medium to be placed on and a second surface oblique to the first surface (see the 103 rejection of claim 6).

11. Claims 16, 18, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tahara et al., Baba et al. and common knowledge as applied to claims 15, 17, 21 and 23 above, and further in view of common knowledge in the art as evidenced by Ando et al. (US 5,808,784).

The combination of Tahara et al., Baba et al. and common knowledge discloses the elements of claims 15, 17, 21 and 23 as described in the 103 rejections above.

The combination does not disclose that the transparent plate is six millimeters thick and the transparent plate has a first end three millimeters thick and a second end eight millimeters thick.

However, it is well known in the art that plates of various thickness have different transmission and reflection characteristics and that plates of three, six and eight millimeters in thickness are used for various desired optics ("The optical conductor 51 is a transparent plate composes of an acrylic resin, a polycarbonate resin, or the like with a thickness of 1 to 10 mm" at col. 32, line 36).



Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize a transparent plate of particular thickness in the device of the Tahara et al. and Baba et al. combination to achieve a particular diffraction arrangement need to read certain information-recorded mediums.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina Fujita whose telephone number is (571) 270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

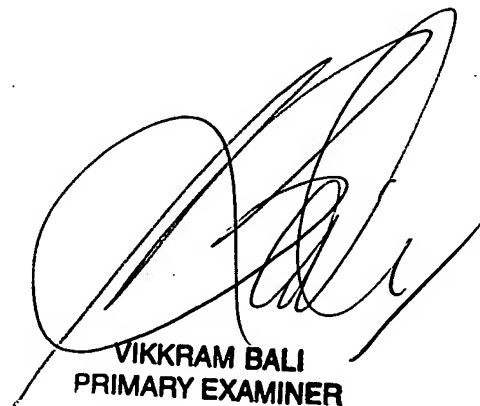
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KGF

Katrina Fujita  
Art Unit 2624



VIKKRAM BALI  
PRIMARY EXAMINER